# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

**FARBER et al.**

Appln. No. 09/612,598

Filed:  July 7, 2000

FOR:  **OPTIMIZED NETWORK RESOURCE LOCATION**

Group Art Unit: 2152

Examiner: Almari ROMERO

## DECLARATION OF ANDREW D. SWART
## UNDER 37 CFR § 1.131

Hon. Commissioner for Patents
Washington, D.C. 20231

Sir:

I, *Andrew D. Swart*, declare and state as follows:

1     I am a joint inventor with David A. Farber, Richard E. Greer and James A. Balter of the invention disclosed and claimed in subject Appln. No. 09/612,598.

2     Prior to August 1, 1997 we **completed the conception of the invention** in this country as shown by the following:

2.1     Prior to August 1, 1997, we prepared invention disclosures for an invention (attached as Exhibit A).

2.2     Described in the invention disclosure (Exh. A) is a distributed hosting framework operative in a computer network in which users of client machines connect to a first server (denoted "origin server" in the invention disclosure).  See, e.g., Exh. A, Figure 2, Client C and Origin Server S ("a server at which resources originate", Exh. A, Pg. 9). The framework includes a set of repeater servers (e.g., Exh. A, Repeater Servers A and B in Figure 2), distinct from the first server, for hosting at least some of the embedded objects of web pages that are normally hosted by the first server.

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2.3     Our invention disclosure (Exh. A) further discloses modifying at least one

embedded object URL of a web page (See., e.g., Exh. A pg. 7, line 1). Exhibit A also

discloses reference substitution (see, e.g., pg. 19, § 7.5.1 "HTML") in a web page.

2.4     Our invention disclosure (Exh. A) further discloses that, in response to requests

for the web page, generated by the client machines, the web page including the modified

embedded object URL is served from the first server (origin) and an embedded object

identified by the modified embedded object URL is served from a given one of the

repeater servers. See, e.g., Exh. A, pg. 2 "when returning a resource to the Client,

replaces references to the Origin Server embedded in the resource by references to the

selected Repeater, so that subsequent requests using that reference are implicitly

reflected."

2.5     Our invention disclosure (Exh. A) describes replacing FQDNs (fully qualified

domain names) with IP addresses (see, e.g., Exh. A, pg. 7) and that "DNS – Domain

Name Service, the system which converts FQDNs into IP addresses." (Exh. A, pg. 8). In

addition, Exhibit A discloses an embodiment "specific to networks using HTTP protocols

(and other protocols) communicated over TCP/IP" Exh. A, pg. 10.

2.6     Our invention disclosure (Exh. A) discloses that if a repeater server does not have

a requested resource then it tries to get that resource from the origin server (See, e.g., pg.

12, steps 76 and 80-94. "Steps 80-94 specifically describe the processing when the

Repeater Service . . . cache does not contain the correct version of the resource." Pg. 12).

Also, our disclosure states that when "a resource is present in the cache and up-to-date,

the server containing the resource does not have to request it from the origin server."

Exh. A, pg. 7.

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2.7     Our invention disclosure (Exh. A) further discloses that the "Best repeater server

[is] . . . the most appropriate Repeater to service a client request . . . taking into account

network distance, network traffic, load, and service provided." Exh. A, pg. 7, § 5.

2.8     **Exhibit B** hereto provides a description of an aspect of the invention, described in

an electronic mail message sent from David Farber, one of the inventors of the subject

invention, to the other inventors.  In the e-mail of Exhibit B, Mr. Farber describes a

Routing Table Generator used in the best repeater selection algorithm according to the

present invention.

2.9     These various features are recited as limitations of claims 41-69 in the subject

Appln. No. 09/612,598.

3       Prior to August 1, 1997, we **reduced to practice** in this country the frameworks, methods

and systems recited in claims 41- 69 of the subject Appln. No. 09/612,598 as shown by

the following:

3.1     Prior to August 1, 1997 we developed a software computer program ("the

Program"), the source code of a version of this program is provided herewith in machine

readable form on a compact disk (CD) as **Exhibit C**.  A directory listing of the files on

the CD is attached hereto as **Exhibit D**.

3.2     Prior to August 1, 1997 we configured a content delivery framework ("the

*Framework*) made up of a network of repeater servers and an origin server, similar to the

configuration depicted in Figure 2 of Exh. A.  The repeater servers were distinct from the

origin server.

3.3     Prior to August 1, 1997 the Program was capable of:

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3.3.1    Upon request from a client, serving a page from the origin server (See,

e.g., Exh. C, file "*wr/agents/Reflector.java::processRequest()*");

3.3.2    Tagging an embedded object in a page served from the origin server so

that the object would resolve to a repeater server (i.e., to a server other

than the origin server). The tagging was performed on URLs of embedded

objects in HTML pages. The tagging was performed by the Program by

prepending a repeater name into the URL. (See, e.g., Exh. C,

*wr/agents/Reflector.java::processRequest(),*

*wr/services/Jigsaw.java::convert(), wr/services/RewriteStream.java,*

*wr/table/RuleBase.java)*

3.3.3    Resolving the URL for the embedded object to one of the repeater servers.

In some cases, the repeater's name was inserted into the modified URLs

and the name was subsequently resolved to the IP address of the repeater

by the browser's DNS server. That is, the Framework used a DNS in

order to provide a system wherein, in response to requests for a web page,

generated by a client, the web page including modified embedded object

URLs was served from the origin server and the embedded object

identified by the modified embedded object URL was served from a given

one of the repeater servers as identified by name servers. (See, e.g., Exh.

C, *wr/agents/Reflector.java::processRequest(),*

*wr/services/Jigsaw.java::convert(), wr/services/RewriteStream.java,*

*wr/services/BestRepeater.java)*

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      3.3.4   Serving the embedded object from the selected repeater server (See, e.g.,

               Exh. C, *wr/agents/Repeater.java::processRequest(); squid/*).

      3.3.5   Selecting a best repeater server based on network distance (including

               requesting user's location), network traffic, load, and service provided

               (See, e.g., Exh. C, *wr/services/BestRepeater.java; wr/tools/netmap/*).

      3.3.6   Replicating a set of page objects across the network of repeater servers

               (See, e.g., Exh. C, *squid/; wr/agents/Repeater.java::processRequest();*

               *wr/services/Cache.java*).

3.4     Prior to August 1, 1997 we ran operational tests on the Program using the

configuration of the repeater servers and origin server described in Section 3.2 above.

4      I hereby declare that all statements made of my own knowledge are true and that all

statements made on information and belief are believed to be true; and further that these

statements were made with the knowledge that willful false statements and the like so

made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of

the United States Code and that such willful false statements may jeopardize the validity

of the application and any patent issued thereon.

Date: _____        ⌐ COPY ⌐ _____

                               Andrew D. Swart

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